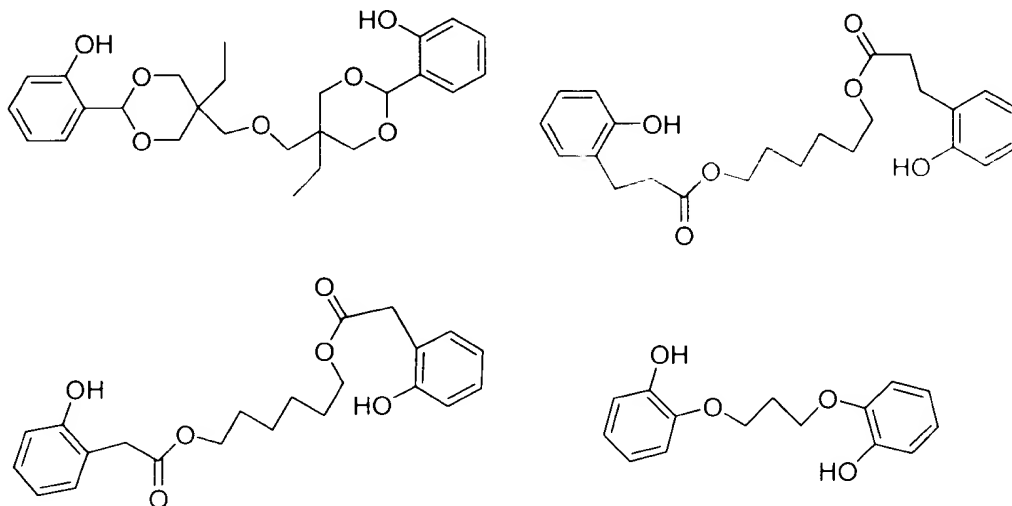


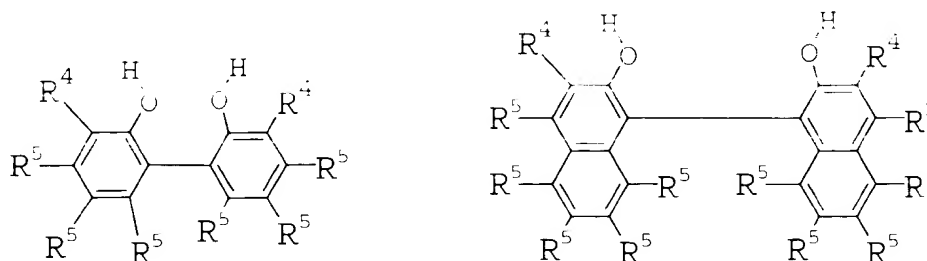
SO_3R^3 , $-\text{S}(\text{O})\text{R}^3$, $-\text{S}(\text{O})_2\text{R}^3$, perhaloalkyl, $-\text{C}(\text{O})\text{N}(\text{R}^3)(\text{R}^3)$, $-\text{A}^1\text{CO}_2\text{R}^3$, $-\text{A}^1\text{OR}^3$ and combinations of two or more thereof.

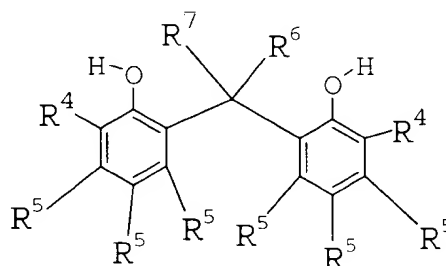
16. (Once amended) A composition according to Claim 15 said polyhydric alcohol is selected from the group consisting of 6,6'-dihydroxy-4,4,4',7,7,7'-hexamethyl bis-2,2'-spirochroman, 2,2'-diallylbisphenolA, bisphenol A, 4,4'-(1-methylethylidene)bis(2-(1-methylpropyl)phenol), 4,4'-thiophenol, 4,4'-dihydroxydiphenylsulfone, 4,4'-sulfonylbis(2-methylphenol), bis(4-hydroxy-3-methylphenyl)sulfide, 2,2'-dis(4-hydroxy-3-methylphenyl)propane, 4,4'-ethylidenebis(2,5-dimethylphenol), 4,4'-propylidenebis(2,5-dimethylphenol), 4,4'-benzylidenebis(2,5-dimethylphenol), 4,4'-ethylidenebis(2-isopropyl-5-methylphenol),



and combinations of two or more thereof.

17. (Once amended) A composition according to Claim 16 wherein said aromatic diol has the formula selected from the group consisting of





and combinations of two or more thereof;

each R^4 is independently selected from the group consisting of hydrogen, C_1 to C_{12} alkyl or cycloalkyl group, acetal, ketal, $-OR^3$, $-CO_2R^3$, C_6 to C_{20} aryl group, $-SiR^3$, $-NO_2$, $-SO_3R^3$, $-S(O)R^3$, $-S(O)_2R^3$, $-CHO$, $-C(O)R^3$, $-F$, $-Cl$, $-CN$, $-CF_3$, $-C(O)N(R^3)(R^3)$, $-A^1Z$, and combinations of two or more thereof;

Z is selected from the group consisting of $-CO_2R^3$, $-CHO$, $-C(O)R^3$, $-C(O)SR^3$, $-SR^3$, $-C(O)NR^1R^1$, $-OC(O)R^3$, $-OC(O)OR^3$, $-N=CR^1R^1$, $-C(R^1)=NR^1$, $-C(R^1)=N-O-R^1$, $-P(O)(OR^3)(OR^3)$, $-S(O)_2R^3$, $-S(O)R^3$, $-C(O)OC(O)R^3$, $-NR^3CO_2R^3$, $-NR^3C(O)NR^1R^1$, F , Cl , $-NO_2$, $-SO_3R^3$, $-CN$, and combinations of two or more thereof;

each R^3 is independently selected from the group consisting of C_1 to C_{12} alkyl or cycloalkyl group, C_6 to C_{20} aryl group, and combinations of two or more thereof;

each R^5 is independently selected from the group consisting of H , F , Cl , C_1 to C_{12} alkyl, C_1 to C_{12} cycloalkyl, C_6 to C_{20} aryl, $-OR^3$, $-CO_2R^3$, $-C(O)R^3$, $-CHO$, $-CN$, $-CF_3$, and combinations of two or more thereof;

each R^6 independently is selected from the group consisting of H , C_1 to C_{12} alkyl, C_1 to C_{12} cycloalkyl, C_6 to C_{20} aryl, and combinations of two or more thereof; and

each R^7 independently is selected from the group consisting of H , C_1 to C_{12} alkyl, C_1 to C_{12} cycloalkyl, C_6 to C_{20} aryl, and combinations of two or more thereof.

18. (Once amended) A composition according to Claim 17 further comprising at least one Group VIII metal selected from the group consisting of nickel, palladium, cobalt, and combinations of two or more thereof.

38. (Once amended) A process according to Claim 36 wherein said polyhydric alcohol is selected from the group consisting of $(OH)_m$, $(R^4)Ar^1-Ar^1(R^4)(OH)_m$ and $(OH)_m(R^4)Ar^1-A^1-Ar^1(R^4)(OH)_m$;

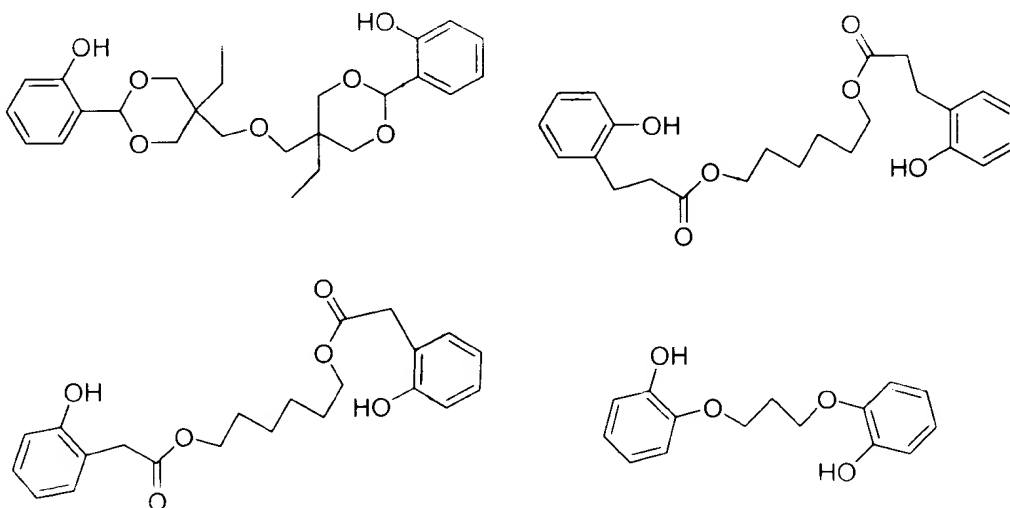
Ar^1 and A^1 are the same as recited in Claim 14; and

each R^4 is independently selected from the group consisting of C_1 to C_{12} alkyl or cycloalkyl group, acetal, ketal, $-OR^3$, $-CO_2R^3$, C_1 to C_{20} aryl group, $-SiR^3$, $-$

SO_3R^3 , $-\text{S}(\text{O})\text{R}^3$, $-\text{S}(\text{O})_2\text{R}^3$, perhaloalkyl, $-\text{C}(\text{O})\text{N}(\text{R}^3)(\text{R}^3)$, $-\text{A}^1\text{CO}_2\text{R}^3$, $-\text{A}^1\text{OR}^3$ and combinations of two or more thereof.

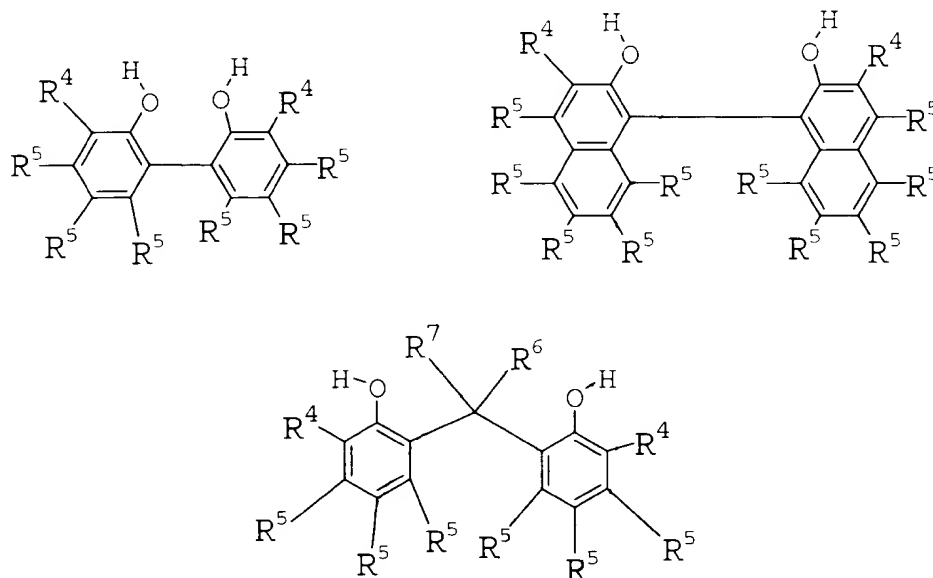
39. (Once amended) A process according to Claim 38 wherein the location of the OH groups of said polyhydric alcohol are placed such that, when said polyhydric alcohol is contacted with PCl_3 , monodentate phosphites are not predominately produced.

40. (Once amended) A process according to Claim 39 wherein said polyhydric alcohol is selected from the group consisting of 6,6'-dihydroxy-4,4,4',7,7,7'-hexamethyl bis-2,2'-spirochroman, 2,2'-diallylbisphenolA, bisphenol A, 4,4'-(1-methylethylidene)bis(2-(1-methylpropyl)phenol), 4,4'-thiophenol, 4,4'-dihydroxydiphenylsulfone, 4,4'-sulfonylbis(2-methylphenol), bis(4-hydroxy-3-methylphenyl)sulfide, 2,2'-dis(4-hydroxy-3-methylphenyl)propane, 4,4'-ethylidenebis(2,5-dimethylphenol), 4,4'-propylidenebis(2,5-dimethylphenol), 4,4'-benzylidenebis(2,5-dimethylphenol), 4,4'-ethylidenebis(2-isopropyl-5-methylphenol),



and combinations of two or more thereof.

41. (Once amended) A process according to Claim 34 or 35 wherein said aromatic diol has the formula selected from the group consisting of



and combinations of two or more thereof;

each R^4 is independently selected from the group consisting of hydrogen, C_1 to C_{12} alkyl group, C_1 to C_{12} cycloalkyl group, acetal, ketal, $-OR^3$, $-CO_2R^3$, C_1 to C_{20} aryl group, $-SiR^3$, $-NO_2$, $-SO_3R^3$, $-S(O)R^3$, $-S(O)_2R^3$, $-CHO$, $-C(O)R^3$, $-F$, $-Cl$, $-CN$, $-CF_3$, $-C(O)N(R^3)(R^3)$, $-A^1Z$, and combinations of two or more thereof;

Z is selected from the group consisting of $-CO_2R^3$, $-CHO$, $-C(O)R^3$, $-C(O)SR^3$, $-SR^3$, $-C(O)NR^1R^1$, $-OC(O)R^3$, $-OC(O)OR^3$, $-N=CR^1R^1$, $-C(R^1)=NR^1$,

$-C(R^1)=N-O-R^1$, $-P(O)(OR^3)(OR^3)$, $-S(O)_2R^3$, $-S(O)R^3$, $-C(O)OC(O)R^3$, $-NR^3CO_2R^3$, $-NR^3C(O)NR^1R^1$, F , Cl , $-NO_2$, $-SO_3R^3$, $-CN$, and combinations of two or more thereof;

each R^3 is independently selected from the group consisting of C_1 to C_{12} alkyl or cycloalkyl group, C_1 to C_{20} aryl group, and combinations of two or more thereof;

each R^5 is independently selected from the group consisting of H , F , Cl , C_1 to C_{12} alkyl or cycloalkyl, C_6 to C_{20} aryl, $-OR^3$, $-CO_2R^3$, $-C(O)R^3$, $-CHO$, $-CN$, $-CF_3$, and combinations of two or more thereof;

each R^6 independently is selected from the group consisting of H , C_1 to C_{12} alkyl or cycloalkyl, C_6 to C_{20} aryl, and combinations of two or more thereof; and

each R^7 independently is selected from the group consisting of H , C_1 to C_{12} alkyl or cycloalkyl, C_6 to C_{20} aryl, and combinations of two or more thereof.

45. (Once amended) A process comprising (a) contacting a diolefinic compound, in the presence of a catalyst composition, with a fluid comprising hydrogen cyanide to produce a 2-alkyl-3-monoalkenenitrile; and (b) contacting said 2-alkyl-3-monoalkenenitrile with said catalyst composition wherein said catalyst composition is the composition recited in claims 18-21.

48. (Once amended) A process comprising contacting a 2-alkyl-3-monoalkenenitrile with a catalyst composition wherein said catalyst composition is the composition recited in Claims 18-21.

50. (New) A polymeric composition comprising repeat units derived from (1) a carbonyl compound, (2) a monomer, and (3) phosphorochloridite wherein said carbonyl compound has the formula selected from the group consisting of $(R^1O_2C)_m(OH)-Ar^1-(OH)(CO_2R^1)_m$, $(R^1O_2C)_m(OH)-Ar^2-A^2-Ar^2-(OH)(CO_2R^1)_m$, $(R^1O_2C)_m(OH)-Ar^2-Ar^2-(OH)(CO_2R^1)_m$ and combinations of two or more thereof;

said monomer is selected from the group consisting of polyhydric alcohols, amines, and combinations thereof,

said phosphorochloridite has the formula selected from the group consisting of $ClP(O-Ar^2-R^2)_2$; the Ar^2 groups in $ClP(O-Ar^2-R^2)_2$ are unlinked to each other, directly linked to each other, or linked to each other through group A^2 ;

each Ar^1 is selected from the group consisting of C_6 to C_{40} phenylene group, C_{12} to C_{40} biphenylene group, C_{10} to C_{40} naphthylene group, C_{20} to C_{40} binaphthylene group, and combinations of two or more thereof;

each Ar^2 is independently selected from the group consisting of C_6 to C_{40} phenylene group, C_{10} to C_{40} naphthylene group, and combinations thereof;

A^2 is selected from the group consisting of $-C(R^1)(R^1)$, $-O-$, $-N(R^1)-$, $-S-$, $-S(O)_2-$, $-S(O)-$, and combinations of two or more thereof;

each R^1 is independently selected from the group consisting of hydrogen, C_1 to C_{12} alkyl group or cycloalkyl group, C_6 to C_{20} aryl group, and combinations of two or more thereof;

each R^2 is independently selected from the group consisting of hydrogen, C_1 to C_{12} alkyl or cycloalkyl group, acetal, ketal, $-OR^3$, $-CO_2R^3$, C_6 to C_{20} aryl group, F, Cl, $-NO_2$, $-SO_3R^3$, $-CN$, perhaloalkyl, $-S(O)R^3$, $-S(O)_2R^3$, $-CHO$, $-C(O)R^3$, cyclic ether, $-A^1Z$, and combinations of two or more thereof;

A^1 is a C_1 to C_{12} alkylene group;

Z is selected from the group consisting of $-\text{CO}_2\text{R}^3$, $-\text{CHO}$, $-\text{C}(\text{O})\text{R}^3$, $-\text{C}(\text{O})\text{SR}^3$, $-\text{SR}^3$, $-\text{C}(\text{O})\text{NR}^1\text{R}^1$, $-\text{OC}(\text{O})\text{R}^3$, $-\text{OC}(\text{O})\text{OR}^3$, $-\text{N}=\text{C}(\text{R}^1)\text{R}^1$, $-\text{C}(\text{R}^1)=\text{NR}^1$, $-\text{C}(\text{R}^1)=\text{N}-\text{O}-\text{R}^1$, $-\text{P}(\text{O})(\text{OR}^3)(\text{OR}^3)$, $-\text{S}(\text{O})_2\text{R}^3$, $-\text{S}(\text{O})\text{R}^3$, $-\text{C}(\text{O})\text{OC}(\text{O})\text{R}^3$, $-\text{NR}^3\text{CO}_2\text{R}^3$, $-\text{NR}^3\text{C}(\text{O})\text{N}(\text{R}^1)\text{R}^1$, F, Cl, $-\text{NO}_2$, $-\text{SO}_3\text{R}^3$, $-\text{CN}$, and combinations of two or more thereof;

each R^3 is independently selected from the group consisting of C_1 to C_{12} alkyl or cycloalkyl group, C_6 to C_{20} aryl group, and combinations thereof; and

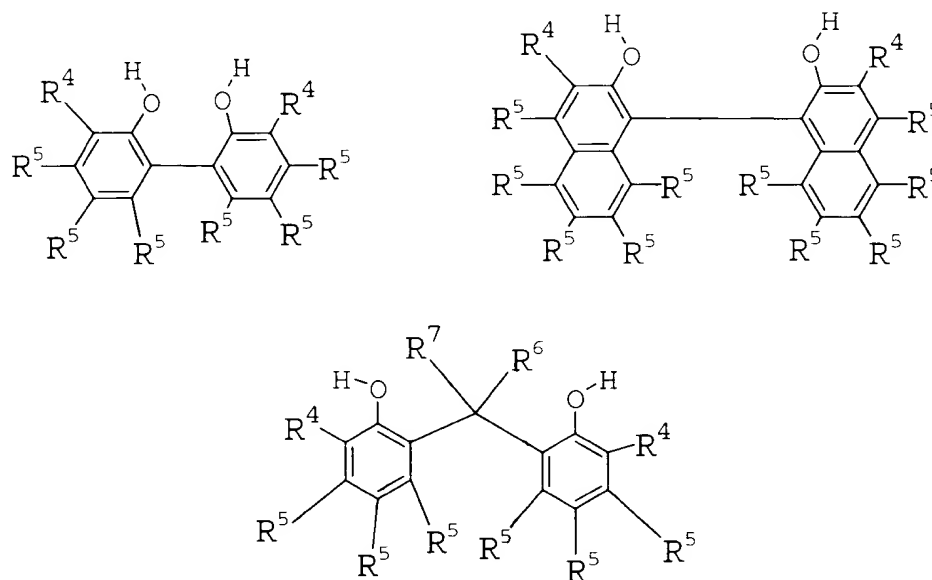
each m is independently a number in the range of from 1 to 2 further comprising at least one Group VIII metal selected from the group consisting of nickel, palladium, cobalt, and combinations of two or more thereof.

51. (New) The composition of claim 50 further comprising at least one Lewis acid which is an inorganic compound or organometallic compound in which the element of said inorganic compound or organometallic compound is selected from the group consisting of scandium, titanium, vanadium, chromium, manganese, iron, cobalt, copper, zinc, boron, aluminum, yttrium, zirconium, niobium, molybdenum, cadmium, rhenium, tin, and combinations of two or more thereof.

52. (New) The composition of claim 51 wherein said Lewis acid is selected from the group consisting of ZnBr_2 , ZnI_2 , ZnCl_2 , ZnSO_4 , CuCl_2 , CuCl , $\text{Cu}(\text{O}_3\text{SCF}_3)_2$, CoCl_2 , CoI_2 , FeI_2 , FeCl_3 , $\text{FeCl}_2(\text{tetrahydrofuran})_2$, FeCl_2 , $\text{TiCl}_4(\text{tetrahydrofuran})_2$, TiCl_4 , TiCl_3 , $\text{ClTi}(\text{OiPr})_3$, MnCl_2 , ScCl_3 , AlCl_3 , $(\text{C}_8\text{H}_{17})\text{AlCl}_2$, $(\text{C}_8\text{H}_{17})_2\text{AlCl}$, $(\text{iso-C}_4\text{H}_9)_2\text{AlCl}$, $(\text{phenyl})_2\text{AlCl}$, phenylAlCl_2 , ReCl_5 , ZrCl_4 , NbCl_5 , VCl_3 , CrCl_2 , MoCl_5 , YCl_3 , CdCl_2 , LaCl_3 , $\text{Er}(\text{O}_3\text{SCF}_3)_3$, $\text{Yb}(\text{O}_2\text{CCF}_3)_3$, SmCl_3 , TaCl_5 , CdCl_2 , $\text{B}(\text{C}_6\text{H}_5)_3$, and $(\text{C}_6\text{H}_5)_3\text{SnX}$, and combinations of two or more thereof; and X is selected from the group consisting of CF_3SO_3 , $\text{CH}_3\text{C}_6\text{H}_5\text{SO}_3$, $(\text{C}_6\text{H}_5)_3\text{BCN}$, and combinations of two or more thereof.

53. (New) The composition of claim 52 wherein said Lewis acid is selected from the group consisting of zinc chloride, cadmium chloride, iron chloride, triphenylboron, $(\text{C}_6\text{H}_5)_3\text{SnX}$, and combinations of two or more thereof; and X is selected from the group consisting of CF_3SO_3 , $\text{CH}_3\text{C}_6\text{H}_5\text{SO}_3$, $(\text{C}_6\text{H}_5)_3\text{BCN}$, and combinations of two or more thereof.

54. (New) A composition according to claim 15 wherein said aromatic diol has the formula selected from the group consisting of



and combinations of two or more thereof;

each R⁴ is independently selected from the group consisting of hydrogen, C₁ to C₁₂ alkyl or cycloalkyl group, acetal, ketal, -OR³, -CO₂R³, C₆ to C₂₀ aryl group, -SiR³, -NO₂, -SO₃R³, -S(O)R³, -S(O)₂R³, -CHO, -C(O)R³, -F, -Cl, -CN,

-CF₃, -C(O)N(R³)(R³), -A¹Z, and combinations of two or more thereof;

Z is selected from the group consisting of -CO₂R³, -CHO, -C(O)R³, -C(O)SR³, -SR³, -C(O)NR¹R¹, -OC(O)R³, -OC(O)OR³, -N=CR¹R¹, -C(R¹)=NR¹, -C(R¹)=N-O-R¹, -P(O)(OR³)(OR³), -S(O)₂R³, -S(O)R³, -C(O)OC(O)R³, -NR³CO₂R³, -NR³C(O)NR¹R¹, F, Cl, -NO₂, -SO₃R³, -CN, and combinations of two or more thereof;

each R³ is independently selected from the group consisting of C₁ to C₁₂ alkyl or cycloalkyl group, C₆ to C₂₀ aryl group, and combinations of two or more thereof;

each R⁵ is independently selected from the group consisting of H, F, Cl, C₁ to C₁₂ alkyl, C₁ to C₁₂ cycloalkyl, C₆ to C₂₀ aryl, -OR³, -CO₂R³, -C(O)R³, -CHO, -CN, -CF₃, and combinations of two or more thereof;

each R⁶ independently is selected from the group consisting of H, C₁ to C₁₂ alkyl, C₁ to C₁₂ cycloalkyl, C₆ to C₂₀ aryl, and combinations of two or more thereof;
and

each R⁷ independently is selected from the group consisting of H, C₁ to C₁₂ alkyl, C₁ to C₁₂ cycloalkyl, C₆ to C₂₀ aryl, and combinations of two or more thereof.

55. (New) A composition according to any of Claims 15 further comprising at least one Group VIII metal selected from the group consisting of nickel, palladium, cobalt, and combinations of two or more thereof.

56. (New) A composition according to any of Claims 16 further comprising at least one Group VIII metal selected from the group consisting of nickel, palladium, cobalt, and combinations of two or more thereof.

57. (New) A composition according to claim 55 further comprising at least one Lewis acid which is an inorganic compound or organometallic compound in which the element of said inorganic compound or organometallic compound is selected from the group consisting of scandium, titanium, vanadium, chromium, manganese, iron, cobalt, copper, zinc, boron, aluminum, yttrium, zirconium, niobium, molybdenum, cadmium, rhenium, tin, and combinations of two or more thereof.

58. (New) A composition according to Claim 57 wherein said Lewis acid is selected from the group consisting of ZnBr_2 , ZnI_2 , ZnCl_2 , ZnSO_4 , CuCl_2 , CuCl , $\text{Cu}(\text{O}_3\text{SCF}_3)_2$, CoCl_2 , CoI_2 , FeI_2 , FeCl_3 , $\text{FeCl}_2(\text{tetrahydrofuran})_2$, FeCl_2 , $\text{TiCl}_4(\text{tetrahydrofuran})_2$, TiCl_4 , TiCl_3 , $\text{ClTi}(\text{OiPr})_3$, MnCl_2 , ScCl_3 , AlCl_3 , $(\text{C}_8\text{H}_{17})\text{AlCl}_2$, $(\text{C}_8\text{H}_{17})_2\text{AlCl}$, $(\text{iso-C}_4\text{H}_9)_2\text{AlCl}$, $(\text{phenyl})_2\text{AlCl}$, phenylAlCl_2 , ReCl_5 , ZrCl_4 , NbCl_5 , VCl_3 , CrCl_2 , MoCl_5 , YCl_3 , CdCl_2 , LaCl_3 , $\text{Er}(\text{O}_3\text{SCF}_3)_3$, $\text{Yb}(\text{O}_2\text{CCF}_3)_3$, SmCl_3 , TaCl_5 , CdCl_2 , $\text{B}(\text{C}_6\text{H}_5)_3$, and $(\text{C}_6\text{H}_5)_3\text{SnX}$, and combinations of two or more thereof; and X is selected from the group consisting of CF_3SO_3 , $\text{CH}_3\text{C}_6\text{H}_5\text{SO}_3$, $(\text{C}_6\text{H}_5)_3\text{BCN}$, and combinations of two or more thereof.

59. (New) A composition according to Claim 58 wherein said Lewis acid is selected from the group consisting of zinc chloride, cadmium chloride, iron chloride, triphenylboron, $(\text{C}_6\text{H}_5)_3\text{SnX}$, and combinations of two or more thereof; and X is selected from the group consisting of CF_3SO_3 , $\text{CH}_3\text{C}_6\text{H}_5\text{SO}_3$, $(\text{C}_6\text{H}_5)_3\text{BCN}$, and combinations of two or more thereof.

60. (New) A composition according to claim 56 further comprising at least one Lewis acid which is an inorganic compound or organometallic compound in which the element of said inorganic compound or organometallic compound is selected from the group consisting of scandium, titanium, vanadium, chromium, manganese, iron, cobalt, copper, zinc, boron, aluminum, yttrium, zirconium, niobium, molybdenum, cadmium, rhenium, tin, and combinations of two or more thereof.

61. (New) A composition according to Claim 60 wherein said Lewis acid is selected from the group consisting of ZnBr_2 , ZnI_2 , ZnCl_2 , ZnSO_4 , CuCl_2 , CuCl ,